US Army Corps of Engineers ®

Safety Awareness for Responders to Emergency Operations: Protecting yourself while helping others

US Army Corps of Engineers ®

Overview

- Introduction
- Physical Hazards
- Health Hazards
  - Animal, snake an insect bites and poisonous plants
- Summary

US Army Corps of Engineers ®

Objectives of this training - At the end of this short session, you should be able to:

1. Identify the hazards in the field
2. Explain how to protect yourself from these hazards
3. Increase safety and health awareness

US Army Corps of Engineers ®

Introduction

US Army Corps of Engineers ®

Injuries May Result From

- Vehicle Accidents
- Struck by
- Falls
- Contusions
- Lacerations

US Army Corps of Engineers ®

Emergency in the Field

- For minor injuries or concerns go to:
  - Local hospitals or clinics
  - First Aid or Nurse station
- In serious Emergency call 911
  - Know your exact location
- Notify your supervisor or Safety Officer

US Army Corps of Engineers ®

Protect yourself

- Walking over and handling debris that is unstable can cause cuts, scrapes, bruises, sprains, etc.
  - Remain current with tetanus vaccination
    - Revaccinate for a dirty wound if current vaccination is over 5 years old
    - If you will be performing direct patient care or otherwise expected to have contact with bodily fluids, get the Hepatitis B vaccine series
- Avoid contact with stagnant water
  - Wash and sanitize immediately if exposed
- Consider steel toe/shank non-slip footwear if available
- Use durable gloves when handling Debris
- Use Hearing Protection for noisy environments

US Army Corps of Engineers ®

Hazard: Falls

US Army Corps of Engineers ®

The Blue Tarps

US Army Corps of Engineers ®

Aerial Lifts

US Army Corps of Engineers ®

QA Towers

No Cone or Barrier between traffic and QA Tower

A proper zone buffer between traffic and QA Tower

US Army Corps of Engineers ®

Hazard: Driving

US Army Corps of Engineers ®

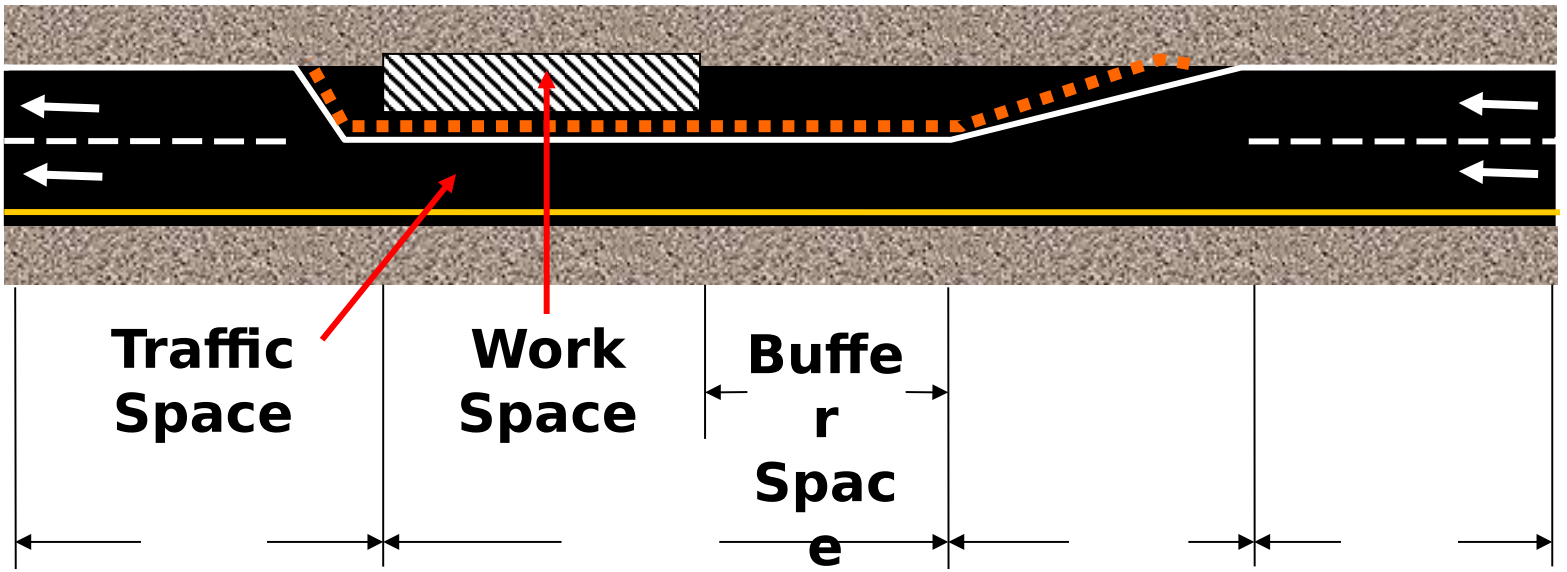
Traffic Issues

US Army Corps of Engineers ®

Work Zone Safety

US Army Corps of Engineers ®

Component Parts of a Temporary Traffic Control Zone



US Army Corps of Engineers ®

Minimum Signs Recommended in the Manual on Uniform Traffic Control Devices (MUTCD)

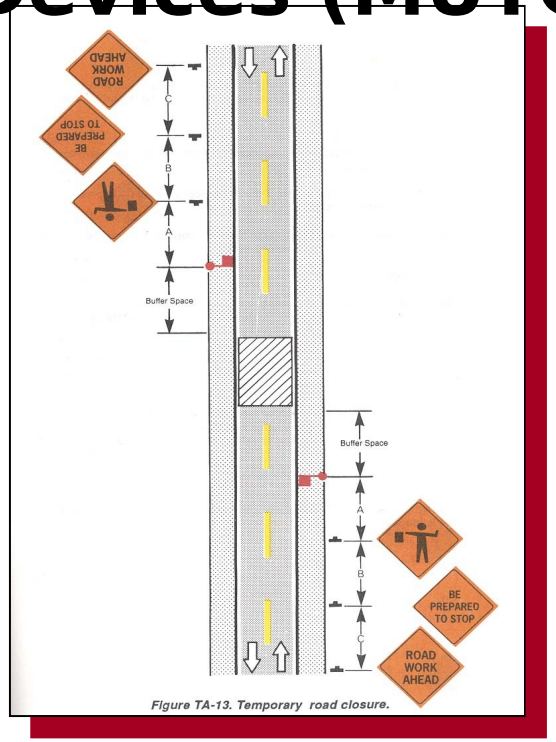


Figure TA-13. Temporary road closure.

US Army Corps of Engineers ®

Debris Truck Hazards

US Army Corps of Engineers ®

Hazard: Electrical, overhead power lines, downed electrical wires, cables

Jobs Affected

- Debris Removal
- Tree Pruning

Hazard Control

- Use appropriately grounded low-voltage equipment.
- Stay clear of downed electrical lines.
- Do not work within 10 feet of energized power lines if you are not a qualified worker
- only qualified employees may guard or insulate the lines

US Army Corps of Engineers ®

Exposed Underground Power Lines

US Army Corps of Engineers ®

Hazard: Operating a chain saw

US Army Corps of Engineers ®

Operating a chain saw

- **Wear the appropriate protective equipment:**
  - Hard hat
  - Safety glasses
  - Hearing protection
  - Heavy work gloves
  - Cut-resistant legwear (chain saw chaps)
- **Always cut at waist level or below**
- **Avoid contact with power lines**
- **Bystanders or coworkers should remain at least:**
  - 2 tree lengths (at least 150 feet) away from anyone felling a tree.
  - 30 feet from anyone operating a chain saw to remove limbs or cut a fallen tree.

US Army Corps of Engineers ®

Hazard: Eye Injuries

- Use safety glasses with side shields as a minimum.
  - An eye wear retainer strap is suggested.
- Consider safety goggles for protection from fine dust particles or for use over regular prescription eye glasses.
- Any worker using a welding torch for cutting must have special eye wear to protect against welding flash.
  - Welding flash causes severe burns to the eyes and surrounding tissue.
- Use only protective eyewear that has an ANSI Z87 mark on the lenses or frames.

US Army Corps of Engineers ®

Hazard: Flying debris/material handling

- Wear personal protective equipment, including hard hats, safety shoes, eye glasse and work gloves.
- Do not walk under or through areas where cranes and other heavy equipment are being used to lift objects.
- Make sure that you have an up-to-date tetanus immunization.

US Army Corps of Engineers ®

Hazard: Debris piles/unstable work surfaces

- Don’t walk on surfaces you aren’t sure are stable.
- Use other ways to get to work surfaces, such as bucket trucks.
- Erect scaffolding on stable surfaces and anchor it to stable structures.
- Wear protective equipment provided, including safety shoes with slip resistant soles.
- Use fall protection with lifelines tied off to suitable anchorage points, including bucket trucks, whenever possible.

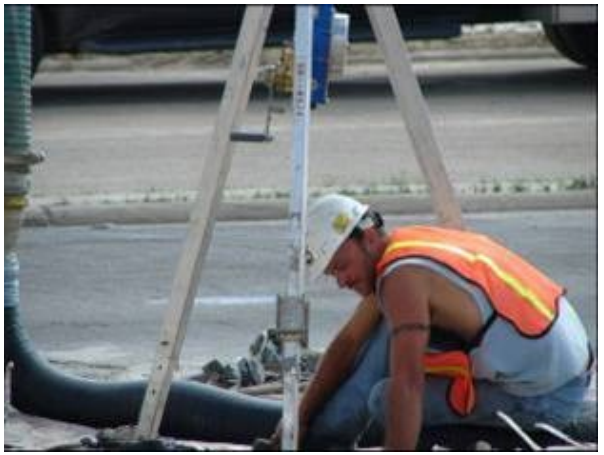
US Army Corps of Engineers ®

Hazard: Confined Space

What is a Confined Space?

- Limited Access
- Not designed for normal occupancy
- Large enough for bodily entry
- Example: Sewers/Storm Drains

Your Safety Officer Must Approve Confined Space Entry!!!!



HAZARDS

- Oxygen Deficiency
- Entrapment
- Engulfment
- Hazardous Atmosphere

US Army Corps of Engineers ®

Structural Integrity

US Army Corps of Engineers ®

Hazard: Heavy equipment

- Be alert to the activities around you.
- Do not exceed the load capacity of cranes and other lifting equipment.
- Do not walk under or through areas where cranes and other heavy equipment are lifting objects.
- Do not climb onto or ride loads being lifted or moved.
- Use outriggers when operating equipment on unstable ground
- Do not ride in or on buckets, forks or blades of heavy equipment

US Army Corps of Engineers ®

Heavy Equipment

- Forklifts
- Bobcats
- Loaders
- Backhoes
- ATVs

US Army Corps of Engineers ®

Chippers-Grinders

- Loud noise
  - Use hearing Protectio
- Flying Debris
  - Stay back 300 feet
- Moving Parts
  - Do not reach into a machine
  - Do not use machine unless trained and authorized

US Army Corps of Engineers ®

Health Hazards

US Army Corps of Engineers ®

Hazard: Heat Related Illness

Heat Stress	Heat Exhaustion	Heat Stroke
Headache	Headache	Headache
Thirst	Dizziness	Dizziness
Profuse sweating	Confusion	Restlessness
Muscle aches	Nausea	Confusion
	Sweating-pale, clammy skin	Hot, flushed dry skin
	Cramps, legs & abdomen	Body temp above 104°F
	Rapid, weakening pulse & breathing	Unresponsive/disoriented

US Army Corps of Engineers ®

Hydration is critical!!

- Drink plenty of fluids.
- Drink every 30 minutes, thirsty or not!

US Army Corps of Engineers ®

Hazard: Sunburn

- Prevent overexposing skin.
- Sunglasses, if used, must be ANSI approved for use as safety glasses
- Use sunscreen and lip balm
- Use protective eyewear
- Limit exposure

US Army Corps of Engineers ®

Hazard: Noise

- Wear appropriate hearing protection in noisy work environments.
  - Examples: saws, earth-moving equipment, pneumatic tools.

US Army Corps of Engineers ®

Hazard: Inhalation of dust containing asbestos, silica and other toxins

- Jobs Affected
  - Debris Removal & Dumping
  - Loading trucks
  - Demolition
- Protection
  - Appropriate Respiratory Protection

US Army Corps of Engineers ®

Hazard: Carbon monoxide inhalation

Symptoms: Headache, dizziness, drowsiness, or nausea; progressing to vomiting, loss of consciousness, and collapse, coma or death under prolonged or high exposures.

Areas affected from gasoline- or propane-powered generators or heavy machinery:

- **Vicinity of operating equipment**
- **Vicinity of generators**
- **Fire Pits**
- **Debris Reduction Sites**
- **Burning & Compacting**

US Army Corps of Engineers ®

Hazard: Chemicals

- Chlorine tank found in downtown Gulfport.
- 78,000 barrels of oil released at two spills.
- Diesel, gasoline, motor oil, chlorine, liquid oxygen, medical waste and corrosives have been found by crews.
- 22,000 facilities in the area have underground fuel tank.
- Industrial/Commercial Chemicals.
- Household Chemicals.

US Army Corps of Engineers ®

Potential chemical exposures

Symptoms: Eye, nose, throat, upper respiratory tract, and skin irritation; flu like symptoms; central nervous system depression, fatigue, loss of coordination, memory difficulties, sleeplessness, mental confusion. Chronic effects depend on the extent and the duration of exposure.

Jobs Affected

- Debris Removal
- Site Clean-up

Protection

Hazard specific as identified by supervisor or safety officer.

US Army Corps of Engineers ®

Hazard Communication

US Army Corps of Engineers ®

Hazard: Mold

After hurricanes and floods, the water creates the perfect environment for mold to grow in homes and other buildings. Exposure to mold can cause wheezing and severe nasal, eye and skin irritation.

US Army Corps of Engineers ®

Hazard: Blood-borne disease

- Use latex or similar gloves when handling human remains.
- Replace gloves if punctured or torn
- Protect yourself from injured persons blood and body fluids
- Do not handle human remains if you have skin cuts or pun

US Army Corps of Engineers ®

Hazard: Food-borne disease

- **Identify and throw away food that may not be safe to eat:**
  - Food that may have come in contact with flood or storm water.
  - Food that has an unusual odor, color, or texture.
  - Meat, poultry, fish, eggs and leftovers that have been above 40 degrees Fahrenheit (F) for 2 hours or more.
  - Food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, snap-open, and home canned items.
    - These cannot be disinfected if they have been in contact with floodwater.
- **Store food safely**
  - While the power is out, keep the refrigerator and freezer doors closed as much as possible.
  - Add block ice or dry ice to your refrigerator if th expected to be off longer than 4 hours. Wear he handling ice.

US Army Corps of Engineers ®

Hazard: Water-borne disease

- Raw sewage bubbles up from a man-hole cover along U.S. Highway 90 in Gulfport. Cities along the Mississippi Gulf Coast are slowly trying to get electricity to sewage treatment plants and lift stations in the wake of Hurricane Katrina.

Wash Your Hands often with soap!!

and use water free sanitizers

US Army Corps of Engineers ®

Hazard: Animals and insects

- **To protect yourself from mosquitoes:**
  - Use screens on dwellings.
  - Wear long pants, socks, and long-sleeved shirts.
  - Use insect repellents that contain DEET or Picaridin.
- **Beware of wild or stray animals:**
  - Avoid wild or stray animals. Call local authorities to handle animals.
  - Get rid of dead animals according to local guidelines.
  - Wear and clean proper protective clothing when handling carcasses.
- **Fire Ants**

US Army Corps of Engineers ®

Hazard: Snakes

- **Be on the alert for snakes** that may be hiding in unusual places after flooding.
  - Snake chaps
  - If you are bitten, seek immediate medical attention.

Hazard: Poisonous Plant

Poison Ivy

- Train workers on hazardous plant recognition
- Use gloves and wear long pants and long-sleeved shirts when possibility of contacting poisonous plants

at the beach

it climbs

it creeps

summer

spring

fall

it's a bush

where it grows

US Army Corps of Engineers ®

Other Protective Measures

Sanitation and Personal Hygiene

- Always Wash your hands with soap
- Use Hand Sanitizers frequently
- Exercise good Housekeeping
- Only drink from proven potable water sources

US Army Corps of Engineers ®

Additional information

- This training program is based on recommendations from FEMA, NIEHS, NIOSH, OSHA, CDC and the USACE
  - You can find a link to their fact sheets and other important information at the National Clearinghouse for Worker Safety and Health Training www.wetp.org .

US Army Corps of Engineers ®

Summary

- The hazards and issues are dynamic and require vigilance and flexibility.
- The key to a safe response is attention to the safety issues of your work environment.
  - The physical hazards are similar to any construction or demolition site.
  - The health hazards include the hazards associated with the environment